Safe Trak 16-23

Operators' Manual

IMPORTANT NOTICE

TENSION OF MAIN DRIVE FOR STC16-23MT35 MUST BE CHECKED AND RESET AFTER THE FIRST 2-3 HOURS OF OPERATION.

FAILURE TO DO SO MAY INVALIDATE WARRANTY.

INSTRUCTIONS TO CHECK AND RESET TENSION ARE DETAILED IN SECTION 6.9.

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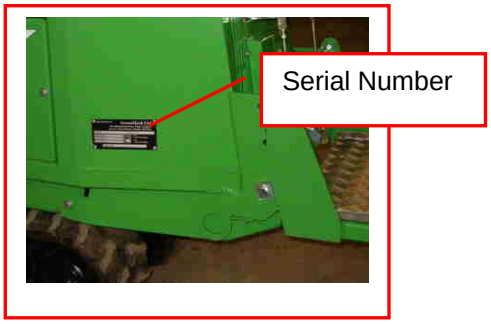
INTRODUCTION

This manual explains the proper operation of your machine. Read these instructions thoroughly before operating and maintaining the machine. Failure to do so could result in personal injury or equipment damage. Consult your GreenMech supplier if you do not understand the instructions in this manual.

CAUTION! This symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury to yourself or others, and carefully read the message that follows.

We recommend that you keep this manual with the machine in the box provided. Note here the serial number and quote it in any communications. This is important when ordering spares. Remember to include all numbers and letters.



Serial Number.....

Write in the number!

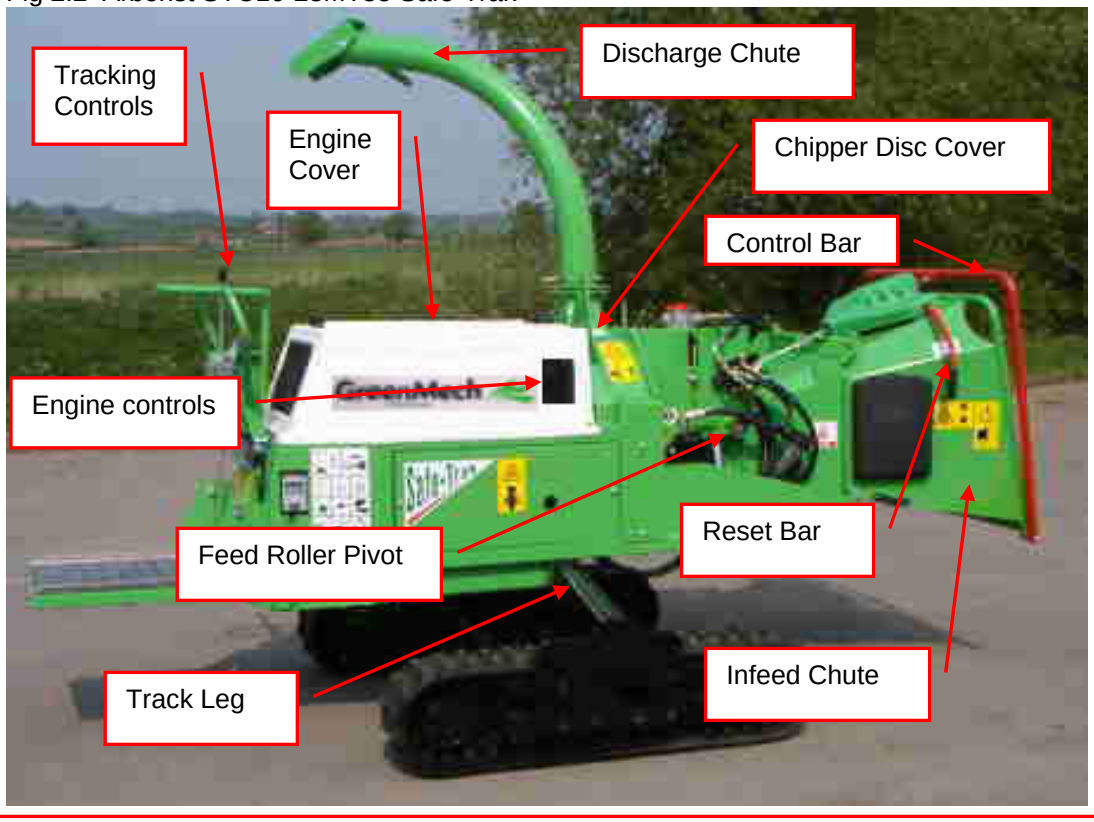
This manual covers the engine driven self-propelled **Safe-Trak STC16-23**
If in doubt, always quote the serial number in any communications.

The information in this manual is correct at the time of publication. However, in the course of development, changes to the machine specification are inevitable. Should you find any information to vary from the machine in your possession please contact your GreenMech dealer for up to date information.
The manual may contain standard and optional features and is not to be used as a machine specification.

PURPOSE

CAUTION! This machine is designed solely to chip wood and must not be used for any other purpose. The machine should only be used by trained operators who are familiar with the contents of this instruction manual. It is potentially hazardous to fit or use any parts other than genuine GreenMech parts. These Wood Chippers are for Off Highways use only. The company disclaims all liability for the consequences of such use, which in addition voids the machine warranty.

Fig 2.2 Arborist STC16-23MT35 Safe-Trak



TECHNICAL SPECIFICATION	Safe-Trak STC16-23MT35
Max capacity	150mm x 230mm (6inch x 9inch)
Infeed opening	920mm x 820mm
Throat size	160mm x 230mm
Chipping disc	500mm x 25mm
Flywheel Speed	2400 rpm
Chipping disc-blades	2/4 Discs
Feed rollers	2 x Hydraulic & Spring Tensioned
Power control	No-Stress Electronic Feed Roller Controller
Power unit	35hp water cooled diesel
Fuel capacity	37Lt
Hydraulic capacity	45Lt
Length (maximum in work position)	3458mm
Length (minimum for transport)	2377mm
Width over body	735mm - 1090mm
Track width	736mm – 1589mm
Track size	250mm x 1440mm
Height	2305mm – 2410mm
Weight	1400Kg
Ground pressure	0.25kg/cm^2

Noise
Noise levels vary depending on type of material being processed. Also duration of operation is variable. Noise emission tests have been carried out and the guaranteed sound power level is displayed on the CE plate as follows: **Lwa 120dB**
Minimise noise by switching to idle or stopping the engine whenever chipping is not in progress.

Full details are included in the Risk Assessment in the Appendix.

CAUTION! Operators must wear appropriate ear protection. Bystanders must be kept away from proximity of machine.

Lifting Points
There is a single central lifting point by the base of the discharge chute.

CAUTION! Lift with extreme care. The machine may tilt because the single lifting point may not be directly over the centre of gravity.

3.1 ENSURE:

3.1.1 All Operators must be fully trained in the use of their machine.
(Certificated Operator training courses are available on request.)
3.1.2 The Operators Manual is read and understood.
3.1.3 The enclosed HSE guidance notes are read and understood.
3.1.4 These Wood Chippers are for Off Highways use only.
3.1.5 The machine is positioned with the body level.
3.1.6 The infeed chute no more than 600mm (23.62 inches) above ground level (fig 3.1)
3.1.7 All guards are fitted and in good condition.
3.1.8 Blades are in good condition and secure.
3.1.9 All blades are sharpened or replaced in “Sets”.
3.1.10 All fasteners are checked regularly for tightness.
3.1.11 Only “WOODEN” materials free of nails etc., are fed into the machine.
3.1.12 Correct First Aid Kit including large wound dressing is available on site.
3.1.13 Fire extinguisher is available on site.

3.2 NEVER:

3.2.1 Work on the machine until the chipper disc is stationary and engine or PTO has stopped.
3.2.2 Operate the machine without protective clothing (Eye protection, Earmuffs, and Gloves), or high visibility clothing when working on roadside.
3.2.3 Operate with loose articles of clothing, including loose cuffs on gloves.
3.2.4 Work under a raised component without adequate safety support.
3.2.5 Operate the machine with untrained personnel or with individuals present who are not involved in the chipping operation.
3.2.6 Leave the machine unattended with engine running at full operating speed. (See section 4)
3.2.7 Put any part of your body into the infeed chute while the machine is running.
3.2.8 Operate the machine whilst under the influence of alcohol or drugs.
3.2.9 Stand between the tracks and the chipper body.
3.2.10 Stand within 2 metres of the tracks when the legs are being extended.
3.2.11 Extend legs to put the tracking controls beyond reach.
3.2.12 Stop the engine or operate the chipper when moving directly up or down a slope.
3.2.13 Operate inside a building or confined space.
3.2.14 Climb on the infeed chute.
3.2.15 Impede or obstruct the Stop control.

3.3 ALWAYS:

3.3.1 Check machine before starting (see Section 4 Preparation and Section 5.1 Operation: Pre-work checks).
3.3.2 Be aware of potential hazards in the work area, i.e. uneven ground, tree roots, obstructions and type of materials being fed into the machine.
3.2.3 Feed from the side.
3.3.4 Have a second trained operator within easy reach of the machine.
3.3.5 Maintain strict discipline at all times.
3.3.6 Service machine at specified periods. (see Section 6: Routine Maintenance).
3.3.7 Note direction of discharge chute and if necessary note the wind direction to prevent debris from being blown into highway or where it could affect members of the public.
3.3.8 Adjust legs to keep the body level.
3.3.9 Check the route to the worksite for gradients, undulations and obstructions.
3.3.10 Remove key before doing any maintenance.

Fig 3.4.1 Control Bar and Reset Lever

Control Bar positions
(Left hand side)
STOP FEED IN FEED OUT

FEED OUT FEED IN STOP
(Right hand side)

Fig 3.4.2 Chute height

Fig 3.4.3 Engine STOP
- RDS Controller

3.4 Safety Controls and Switches

3.4.1 Emergency Stop/Control Bar (fig 3.4.1

In the event of an emergency, push emergency stop bar to STOP feed rollers. This will lock in position

3.4.1.1 Once emergency has been rectified carry out:the following sequence.

3.4.1.2 To restart rollers pull reset lever. Control bar will return automatically to Feed In position.

3.4.1.3 Should stop bar be tripped accidentally in normal working conditions i.e. NOT an emergency, then rollers can be recovered by performing above sequence.

3.4.1.4 To reverse (Feed Out) rollers pull control bar out towards the operator. Bar will return to Feed In when released.

⚠ CAUTION! Regularly check that control bar locates in the 3 correct positions. At no time may this system be removed, jammed, disabled or otherwise impede from effecting the infeed stop control.

Engine Stop

3.4.2.1 Press STOP button and wait for engine to stop, or turn key to OFF (fig3.4.2).

3.4.2.2 To disable machine, remove key.

⚠ CAUTION! Do not restart engine until hazard has been removed.

⚠ CAUTION! Chipper flywheel may take several minutes to stop due to its inertia.

3.5 Control cut-outs

Cut-outs are installed to stop and prevent restarting due to specific events.

3.5.1 Engine overheating is protected by thermal cut-out switch in coolant circuit.

3.5.2 Low engine oil pressure is protected by pressure switch in engine oil pump. There is a manual override to enable starting. Refer to GreenMech in an emergency.

3.5.3 Engine cover opening is protected by microswitch to shut off fuel solenoid.

Fig 3.7.1 Tracking controls

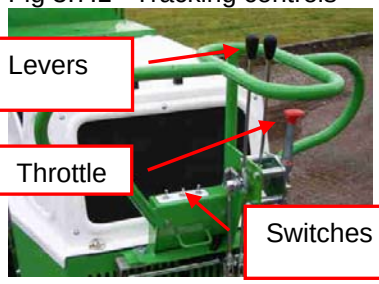
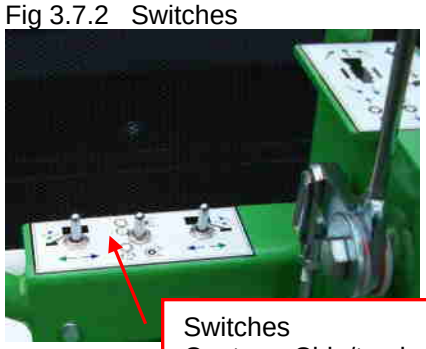


Fig 3.7.2 Switches



3.6 No Stress system

3.6.1 Speed sensor in alternator disables feed roller FEED IN mode when engine speed is below factory pre-set value.

3.7 Tracking Controls (Fig 3.7.1 & 3.7.2)

3.7.1 A two position toggle switch selects either tracking or chipping. In track mode No Stress system will not allow feed rollers to operate. In chip mode legs cannot be extended and drive to track pumps is disconnected. (Fig 3.7.2)

3.7.2 A three position toggle switch controls each extending leg. Out to extend. In to retract.

3.7.3 Lever controls operate drives to tracks. Push for forward motion. Pull for reverse motion.

3.7.4 A hand throttle for engine speed is fitted for use when machine is being tracked, and idle to run when chipping.

Note: Chipper flywheel runs whenever engine is running.

⚠ CAUTION! Take care operating tilt when standing on platform.

⚠ CAUTION! When traversing slopes track with legs at least 50% extended whenever possible.

3.8 SYMBOLS on the MACHINE

These relate to operator safety, correct use and maintenance of machine. Check that all personnel understand and are familiar with meanings before using the machine.

Important Safety symbols

Take the correct action shown on the display below the stated hazard (see table)

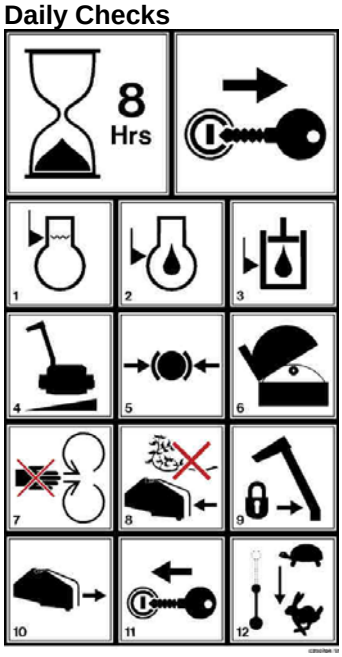
General Safety

Caution!		**Remove key**		**Do NOT start engine**
Caution!	Beware flying object hazard	Beware noise hazard	Beware trapping hazard	Brakes off -incorrect
Read instruction manual	Wear helmet & visor	Wear ear protectors	Wear proper clothes	Brakes on -correct
Machine not level -incorrect	Beware flying object hazard	Beware flying object hazard	Beware exposed drives hazard	Caution!
Machine level -correct	Keep bystanders away	Position and lock discharge chute	Fit all guards	Keep nuts tight

Important Operating Checks Notice

Before use carry out daily the stated checks in the order shown (see table)

Daily Checks



Every 8 Hours – Daily checks		**Remove key stop engine**
1. Check coolant level	2. Check engine oil level	3. Check hydraulic oil level
4. Check machine is level	5. Check brakes are on	6. Check chipper disc is clear of debris
7. Check all guards are in place	8. Check infeed chute is clear of debris	9. Lock discharge chute
10. Pull control bar to work position	11. Start engine	12. Increase from Idle to Run

Important Safety Information

Caution!

Do NOT drive up or down slopes of more than 25°

Caution!

Do NOT operate or traverse on slopes of more than 35°

Caution! Beware Crushing hazard!

Do NOT work or park directly up or down slope.

Caution! Beware crushing hazard

Action: Do NOT stand in area between machine body and tracks

Caution! Beware of thrown object hazard

Action: Keep away from fast discharge chute

Caution!

Do not climb into infeed chute

Caution!

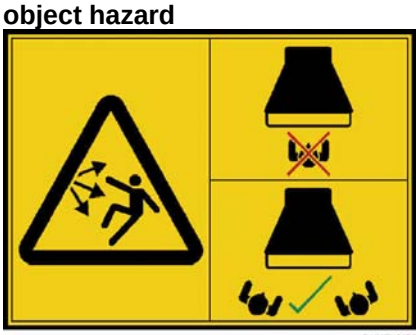
Do NOT operate with infeed chute at greater than 600mm from ground. (top bar machines)

Caution! Infeed chute trapping hazards

Keep hands clear. Do not climb in

Safety Information (continued)

Caution! Beware of thrown object hazard

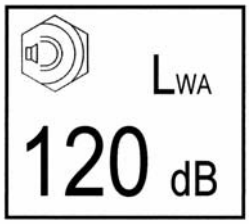


Action: Stand to side of infeed chute, NOT in centre.

Transport Lock

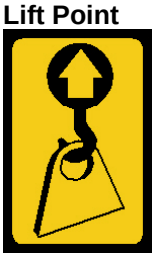
Lock this component before moving machine

Sound level



Ear defenders must be worn

Lift Point



Maintenance Information

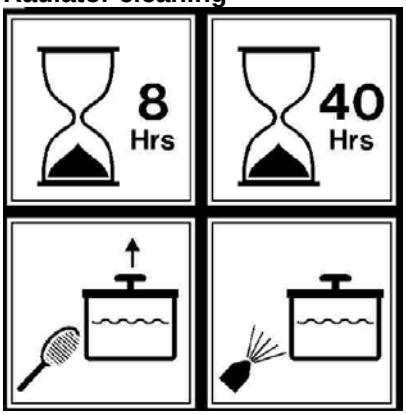
Diesel Filler

Hydraulic Filler

Grease point

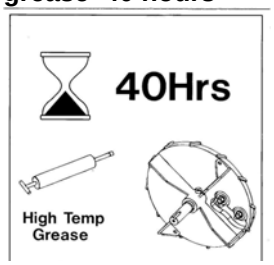
40 hours / weekly

Radiator cleaning



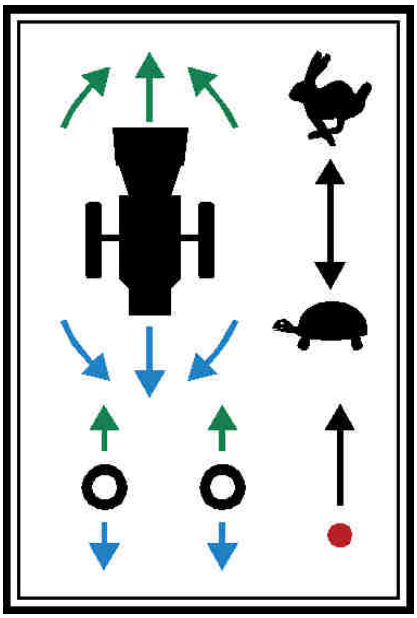
8 Hours	40 Hours
Check radiator screen	Blow out radiator core

High temperature grease 40 hours



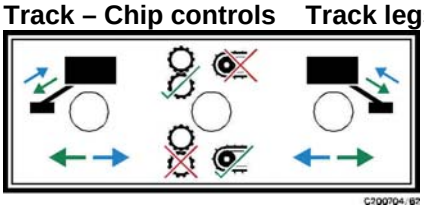
Operating Information

Track drive and throttle controls



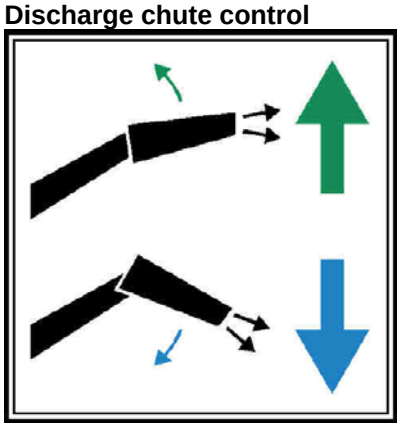
Left lever
LH track: forwards – backwards
Right lever
RH track: forwards – backwards
Lever with red knob
Engine throttle slow - fast

Track – Chip controls Track legs



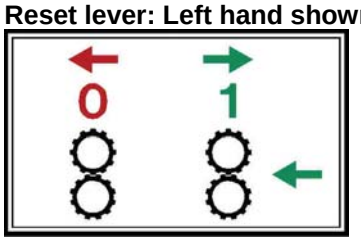
Outer switches – legs extend - retract
Centre switch – Up to chip: Down to drive

Discharge chute control



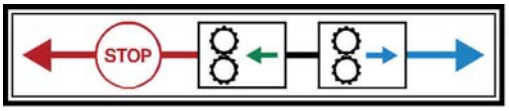
Green is UP Blue is DOWN

Reset lever: Left hand shown



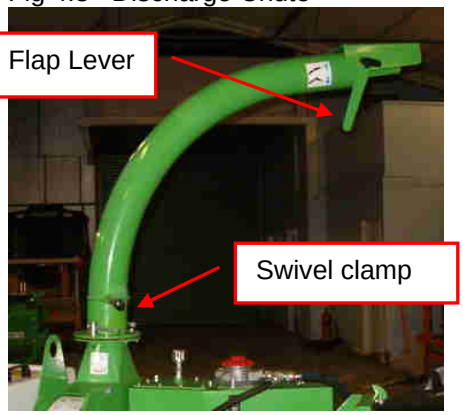
Pull to reset

Control Bar. Left hand shown



Push to stop: Centre-feed in: Pull–feed out

Fig 4.3 Discharge Chute



4.1 Initial Fuelling and Parking

4.1.1 Fill fuel tank with diesel. See Section 6.
4.1.2 Top up hydraulic tank if necessary, with correct oil. See Section 6.
4.1.3 Position machine body level and adjust until infeed chute is in correct position - 600mm max from ground. (see fig 3.1)

4.2 Infeed Chute

4.2.4 Pull the reset lever to release the control bar for use.

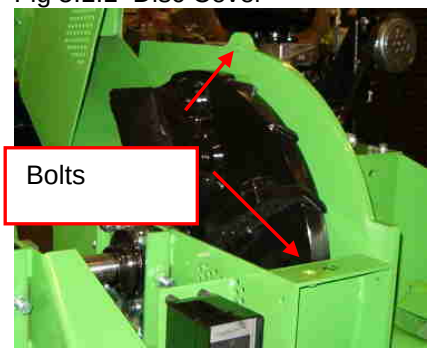
⚠ CAUTION! The infeed chute must be positioned correctly above the ground. (fig 3.1)

4.3 Discharge Chute (Fig 4.3)

4.3.1 Release swivel clamps and point chute in desired direction away from infeed.
4.3.2 Set flap at desired height
4.3.3 Tighten all clamps.

⚠ CAUTION! When travelling, lock discharge chute pointing away from driver.

Fig 5.1.1 Disc Cover



5.1 Pre-Work Checks:

5.1.1 Check machine is stationary, start key removed,

5.1.2 Check that machine is level and infeed chute is correct height from ground (fig 3.4.3).

5.1.3 Check engine oil level (Refer to engine instruction manual).

5.1.4 Check hydraulic oil level (See Section 6).

5.1.5 Check fasteners for tightness and hydraulic connections for leaks.

5.1.6 Check condition of disc blades.

5.1.6.1 Raise or remove engine cover.

5.1.6.2 Remove two bolt retaining chipper flywheel cover. (Fig 5.1.1)

5.1.6.3 Using discharge chute handle as a lever, swing back cover onto stop to expose chipper disc and blades. (fig 5.1)

5.1.6.4 Carefully rotate chipper flywheel to check tightness of disc blade bolts and condition of blades.

5.1.6.5 Remove any loose wood material.

5.1.6.6 If any bolts are loose, refer to maintenance section for further action.

5.1.6.7 Replace chipper flywheel cover and tighten bolt(s) securely.

5.1.7 Remove any loose material and dust from radiator and engine bay.

5.1.8 Replace engine cover.

5.1.9 Check discharge chute is in desired position and all clamps are tight. (see Section 4.3)

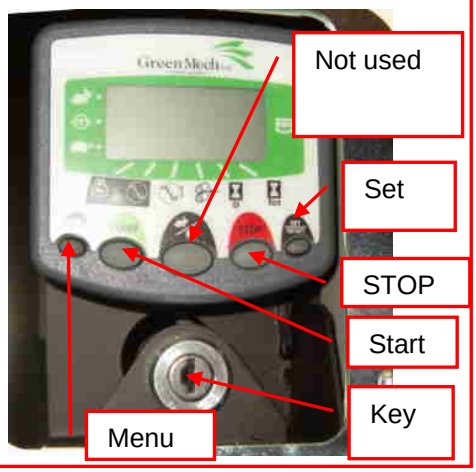
5.1.10 Check work area and erect signs and cone off discharge area if necessary.

5.1.11 Check **ALL** safety procedures have been followed.

⚠ CAUTION! Beware sharp edges of blades and unexpected movement.

⚠ CAUTION! Always work with the chipper level across a slope, preferably with the infeed direction slightly down the slope to minimise the risk of material falling back out.

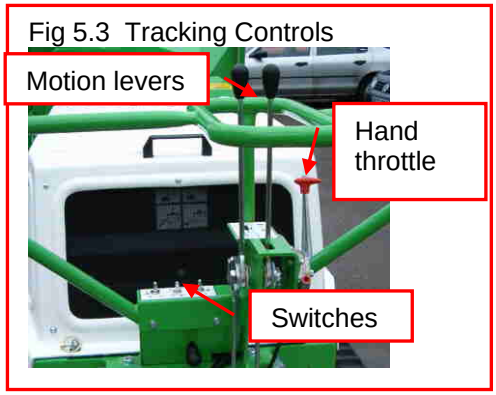
Fig 5.2 RDS control box



5.2 Starting Machine:

5.2.1 Check all other personnel are clear of machine.
5.2.2 Check that feed roller control bar is pushed to the FEED OUT or STOP position, to make the machine safe.
5.2.3 Turn ignition key to 'power up' (Fig 5.2).
5.2.4 Optional PIN Code if enabled. Otherwise proceed at 5.2.5
(Please consult your dealer for instructions to enable or disable PIN, according to preference.)
5.2.4.1 When 0000 appears enter PIN code as below.
5.2.4.2 Press and hold left hand menu button until first digit of PIN is displayed.
5.2.4.3 Release button and repeat for second and remaining digits until code is entered.
5.2.4.4 When code is correct press SET.
5.2.5 Wait for the pre-heat icon to disappear.
5.2.6 Press and hold START button until engine is running.
5.2.7 Pull hand throttle lever to increase speed to operating speed.

Fig 5.3 Tracking Controls



5.3 Stopping Machine

5.3.1 Push control bar to STOP position.
5.3.2 Push hand throttle to idle and allow chipper flywheel to slow down (fig 5.3).
5.3.3 Press red STOP button to stop engine.
5.3.4 Switch ON - OFF key to position 0.
5.3.5 Wait for chipper disc to stop.

⚠ CAUTION! Chipper disc will take several seconds to stop due to its inertia.

Fig 5.4.1 Tracking Controls

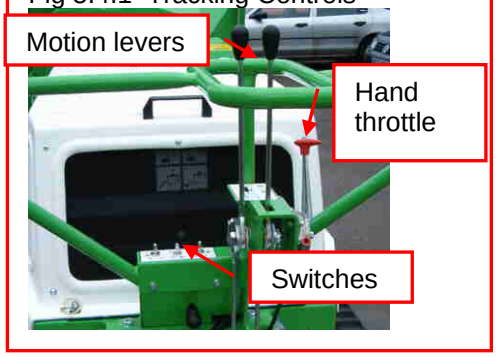


Fig 5.4.2 Track Legs

5.4 Moving the Machine

5.4.1 At tracking controls, (fig 5.4.1) select Track. (Centre switch down)
5.4.2 Extend legs as required, keeping body level. (fig 5.4.2)
5.4.3 Push both levers together to start forward movement.
5.4.4 Open hand throttle to increase speed. Close to decrease speed.
5.4.5 Push left or right lever to steer.
5.4.6 At work site adjust legs to level the body and to position infeed chute at 600mm min. height.
5.4.7 Close hand throttle to slow engine.
Note: When extending or retracting legs it is advisable to track machine.

⚠ CAUTION! When extending legs, do not force track against solid objects. This may dislodge track.

⚠ CAUTION! Avoid static turns on hard surfaces. This will rapidly wear tracks

⚠ CAUTION! Point discharge chute away from driver. Over long journeys, engage the chipper drive to blow out build up of exhaust gas.

⚠ CAUTION! Do not drive directly up slopes exceeding 20 degrees. Slopes up to 35 degrees may be traversed with care.

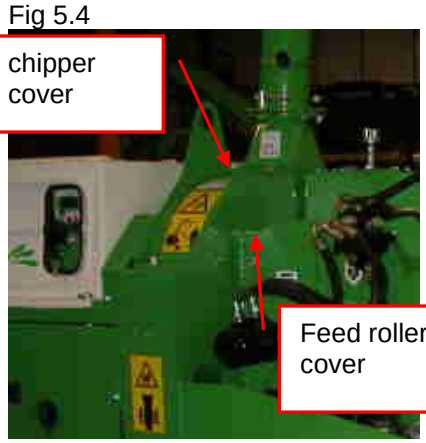
5.5 Starting the Chipper

5.5.1 At tracking controls, select CHIP. (Centre switch up)
5.5.3 Move hand throttle lever to increase speed to operating speed.
5.5.4 Pull reset lever to release the control bar for work.

5.6 Stopping the Chipper

5.6.1 Push control bar to STOP position.
5.6.2 Set hand throttle lever to Idle.
5.6.3 Press STOP to stop engine (fig 5.2).
5.6.4 Switch start key to OFF.
5.6.5 Always wait for chipper flywheel to stop.

Fig 5.4



5.5 Blockages.

⚠ CAUTION! Beware sharp edges and dust. Wear protective gloves and eye shield!

5.5.1 Stop engine and REMOVE key to secure place.

5.5.2 Open chipper chamber. See 5.1 Pre-work checks.

⚠ CAUTION! Chipped material is inflammable. Expect large volume and prevent from falling into engine compartment. All material must be removed.

5.5.3 Rotate discharge chute to accessible position for cleaning.

5.5.4 Clean out discharge chute thoroughly with a suitable rod to pass around bends as necessary.

5.5.5 Check if chipper disc is free to rotate. Pull top of disc in operating direction of rotation. If so proceed to 5.5.11 below.

⚠ CAUTION! Beware sharp edges of blades and unexpected movement of disc due to resistance of engine.

If disc does NOT rotate freely, proceed as follows:

5.5.6 Remove feed roller cover (Fig 1) to access chipper blades and shear bar.

5.5.7 Carefully remove excess loose material from around chipper disc and note any obstructions.

5.5.8 Carefully rotate chipper disc in reverse direction (top away from operator) by full revolution to release blocked material. Use bar against paddle blades for aid.

5.5.9 Carefully remove all material, checking for obstructions. Check rotation of chipper disc.

5.5.10 Check condition of blades.

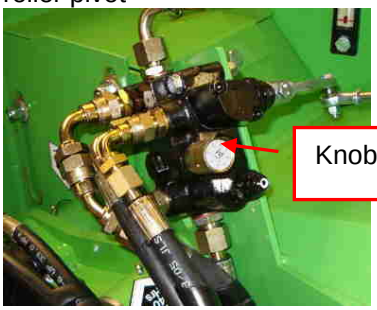
Note: Always attempt to find reason for blockage. e.g. blunt blades, slack drive belts.

5.5.11 Re-assemble all covers with correct fasteners and check for security.

5.5.12 Start engine as Operators Manual Section 5.2 and check operation.

Note: If machine will not run repeat process or contact dealer for technical advice.

Fig 5.6 Feed control - location by roller pivot



Control knob settings

Material	**Setting**
up to 120mm	Fully open (3 turns)
120 - 150mm	1/2 to 3/4 turn

5.6 Adjustable Speed Feed Roller Control

When chipping wood sizes larger than 150mm diameter it is necessary to reduce feed roller speed to suit material being chipped.

5.6.1 Turn valve control knob (fig 5.6) clockwise until valve is closed.

5.6.2 Turn knob anticlockwise to the recommended setting in the table.

Fig 5.7.2 RDS Control unit

5.7 Operating Hints

5.7.1 Check chip/track switch is set to CHIP.

5.7.3 Check disc speed on control unit is 1470rev/min minimum or more (fig 5.7).

NOTE: The “No Stress” system will only allow FEED IN (Forwards) operation of feed rollers when machine is running at FULL operating speed.

5.7.4 Select START/IDLE to reduce speed to idle whilst further material is collected for chipping.

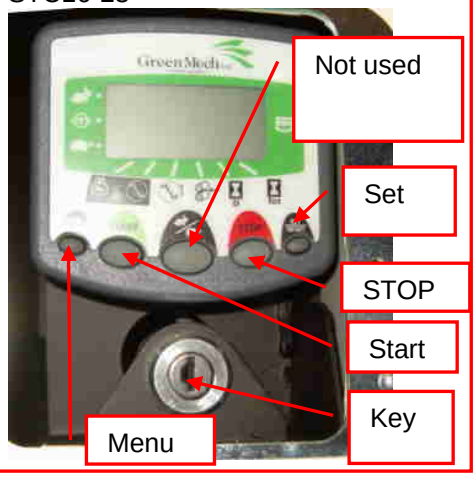
5.7.5 Take care when feeding wood into machine to allow for awkward shapes to “KICK” when contacting feed rollers.

5.7.6 Position end of larger sections of wood inside infeed chute and then support other end whilst pushing the wood into feed rollers.

⚠ CAUTION! Do not release discharge chute clamps when chipping is in progress. Elevation of the discharge is altered by means of adjustable flap (fig. 4.3).

⚠ CAUTION! Keep working area around machine clear at all times and check only authorised personnel are present.

Fig 5.2.1(b) RDS control box STC16-23



5.8 On Completion Of Work

5.8.1 Check that engine has stopped and chipper disc is stationary.
5.8.2 Remove surplus material from infeed chute and machine surfaces.
5.8.4 Set discharge flap into lowest position and tighten clamp.
5.8.5 Release clamps, turn discharge chute away from tracking controls, tighten clamps.

⚠ CAUTION! Do not leave machine parked directly up or down slope.

5.9 RDS Control Display

Control displays chipper speed (default) feed roller status, daily hours, total hours and faults. (Fig 5.2.1(b))
5.9.1 Press left hand menu button to scroll through display menu indicated by black triangle over symbol.
5.9.2 Reset daily hours. Scroll to daily hours (pos. 5) Press and hold Set/Reset.
5.9.3 Fault signals. Refer to Maintenance section 6.23.

⚠ CAUTION! Bleep sounds. Ten regular bleeps indicates engine service due. Bleeps at other times may indicate a fault. If in doubt, consult dealer.

⚠ CAUTION! Do not hang other keys with ignition key. Weight can stop engine.

ROUTINE MAINTENANCE SCHEDULE

CAUTION! Always remove key and check for rotation before carrying out any maintenance.

Action	Section	Page
DAILY		
Check engine oil level and coolant (ref: engine manual)	6.2 – 6.3	6-4
Check hydraulic oil level	6.4	6-4
Check fuel level	6.5	6-4
Check all drive belts	6.6	6-4
Check condition of disc blades and retaining bolts	6.7	6-5
Clean radiator screen and around radiator	6.8	6-6
Check feed roller control bar function	3.4	3-2
Check condition of tracks	Refer to track manual	
Check track gear, nuts, rollers and bearings	Refer to track manual	
FIRST 50 HOURS		
Check battery levels	6.12	6-7
Check drive belt tensions	6.14	6-7, 6-8
Check hydraulic connections	6.16	6-8
Check all mountings	6.17	6-8
Check feed roller control bar function	3.4	3-2
Service engine	Refer to engine manual	
WEEKLY in addition to Daily actions		
Grease all bearings, pivots and slide pads	6.1, 6.13	6-3, 6-7
Blow out radiator core with air line	6.8	6-6
Steam clean machine	6.9	6-6
Clean air cleaner	6.10	6-6
Check electrical connections	6.11	6-6
Check battery levels	6.12	6-7
Check chipper and pump drive belt tensions	6.14, 6.15	6-7, 6-8
Check hydraulic connections	6.16	6-8
Check all mountings	6.17	6-8
Check feed roller control bar function	3.4	3-2
250 hours in addition to Daily and Weekly actions		
Check condition of bearings and pivots	6.1, 6.13	6-3, 6-7
Check all fluid levels	6.2, 6.3, 6.4	6-4
Service engine	Refer to engine manual	
Check track gear units, rollers and bearings	Refer to track manual	
Replace return filter element(s)	6.18	6-8
1000 hours in addition to 250 hour actions		
Change hydraulic oil when replacing filter element	6.19	6-9

DIESEL ENGINE MAINTENANCE **REFER TO ENGINE MANUAL**

TRACK MAINTENANCE **REFER TO TRACK MANUAL**

Recommended lubricants	**Specification**
Hydraulic Oil	ISO 32
Grease	Complex grease EP2 (high temperature)
Engine	SAE 15W-40 APICD

6.1 Lubrication Points (see also 6.13)

Fig 6.1.1 Lubrication points STC16-23

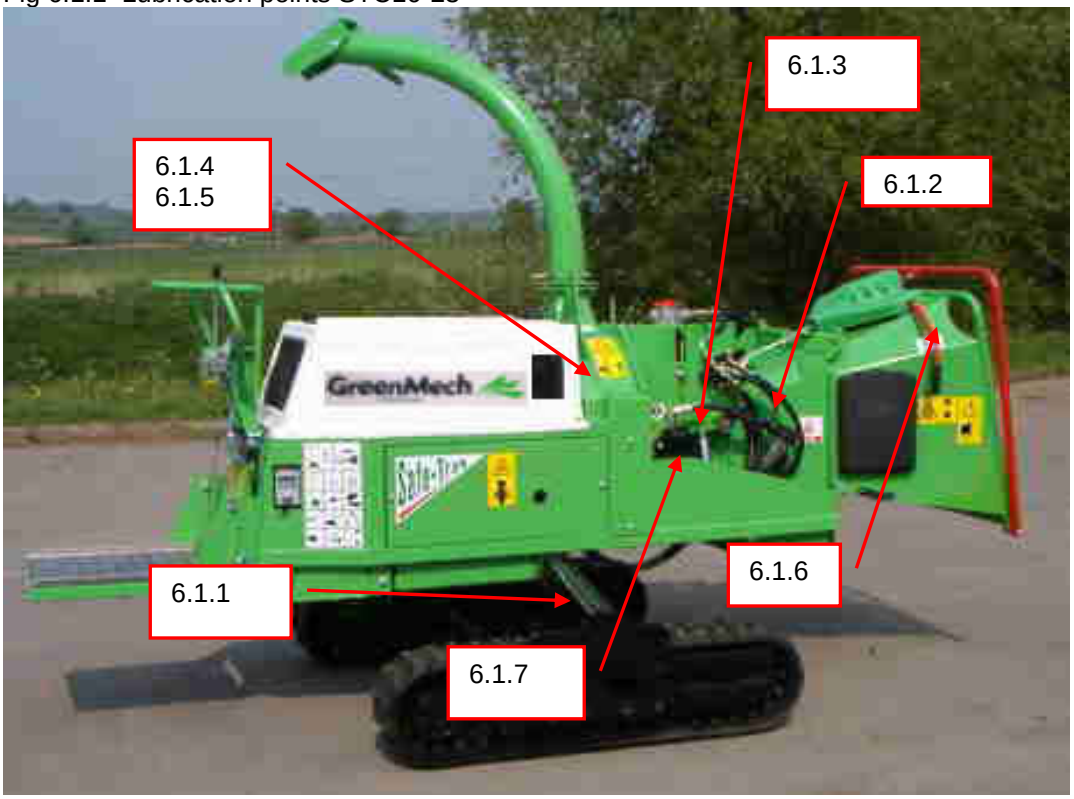
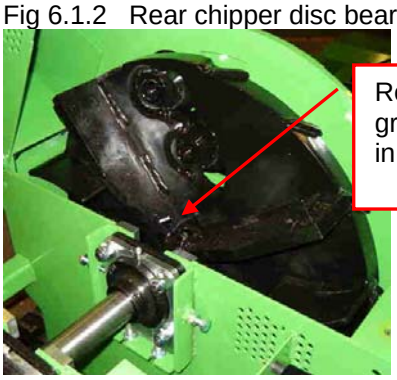


Fig 6.1.2 Rear chipper disc bearing



Grease except where stated

6.1.1	Track legs	2 nipples each leg
6.1.2	Top Feed roller pivot	1 nipple
6.1.3	Top Feed roller bearing	1 nipple
6.1.4	Chipper Disc bearings	1 nipple each bearing
Note:	Rear disc bearing is greased through disc. (fig 6.1.2)	
6.1.5	Chipper Disc labyrinth seal	1 nipple
6.1.6	Mechanical reset mechanism	Clean and grease
6.1.7	Bottom Feed roller bearing	1 nipple
Note.	Do not overgrease bearings as damage to seals may occur.	
Note:	Use high temperature grease on chipper disc bearings	

Fig. 6.2 Engine dipstick (typical)

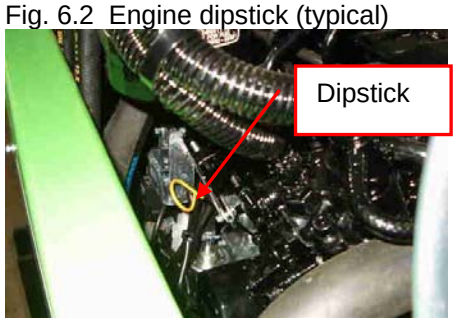


Fig.6.3 Coolant

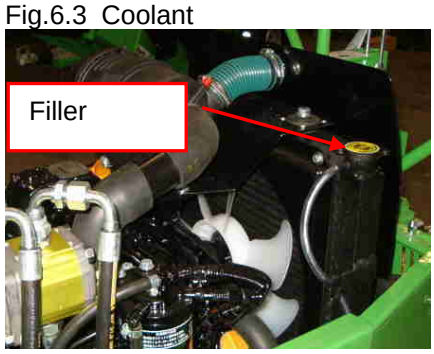


Fig 6.4 Hydraulic Filler

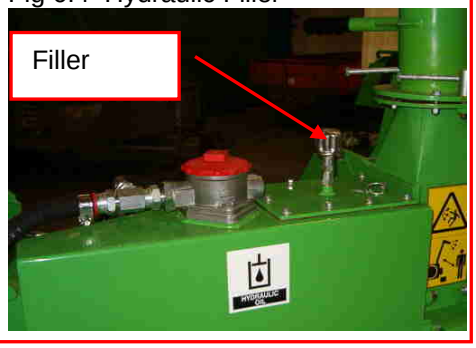
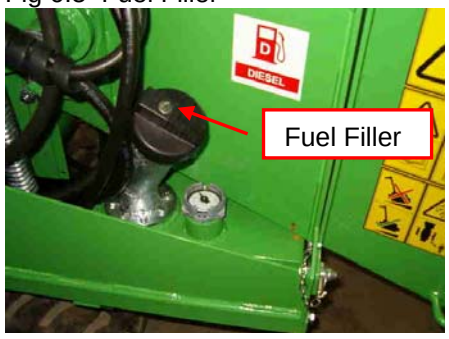


Fig 6.5 Fuel Filler



6.2 Engine Oil

6.2.1 Check daily (fig 6.2). Refer to engine manual to refill.

6.3 Coolant

6.3.1 Check daily, (fig 6.3). Refill as required. Check antifreeze.

⚠ CAUTION! Do not remove cap when engine is hot.

6.4 Hydraulic Oil

6.4.1 Check daily (Fig 6.4). If below mark check for leaks and refill to correct level.

6.4.2 1000 hours. Remove drain plug, Drain tank and refill with clean oil of correct specification. Replace filter (6.18)

6.5 Fuel

6.5.1 Check daily (fig 6.5) before work and fill with diesel as required.

⚠ CAUTION! Use clean diesel fuel only. If in doubt, use a funnel with a filter.

⚠ CAUTION! Do not use any form of synthetic fuel.

6.6 Drive Belts

6.6.1 Check daily, before work, the condition of all drive belts and replace if worn.

Note: Chipper drive belt must be checked and re-tensioned after first 2-3 hours use. See section 6.14

Fig 6.7.1 Chipper flywheel cover

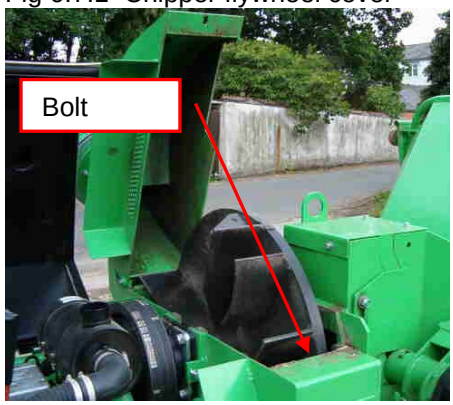
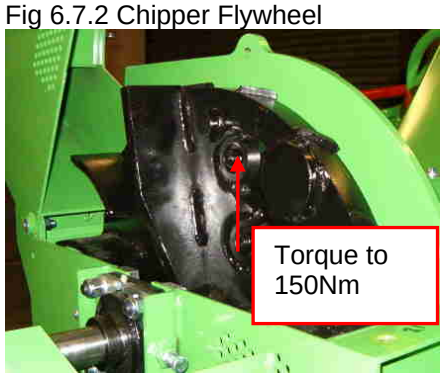


Fig 6.7.2 Chipper Flywheel



6.7 Disc Blade Rotation and Replacement

The design of the blades permits relocation in at least three rotated positions before regrinding or replacement is required.

6.7.1 Check engine is switched off, and start key removed.

6.7.2 Raise engine cover, and check any rotation has stopped.

6.7.3 Remove the bolt(s) retaining chipper flywheel cover (fig 6.7.1).

⚠ CAUTION! Take care. Blades are extremely sharp.

6.7.4 Using discharge chute handle as a lever, swing back cover on to stop to expose chipper flywheel and blades.

6.7.5 Current best practice is to 'lock' chipper flywheel with timber or similar in desired position when slackening or tightening blade bolts to 150NM.

6.7.6 Slacken disc blade retaining bolt, remove disc, clean mounting face and location (fig 6.7.2).

6.7.7 Replace disc in a rotated position to present a sharp section to the shear bars.

6.7.8 Torque up bolt to 150NM (110lb.ft.)

6.7.9 Check condition and security of shear bars. Rotate or replace if required. Do not regrind.

⚠ CAUTION! Disc blades must only be sharpened by grinding the angled back face on a suitable grinder. Grinding of the front face will upset the gap, which is factory set. Do not sharpen with hand held equipment.

Note. If any of the Disc-Blades are worn below the flat annular section a complete set should be replaced. Inspect condition of nuts and bolts and replace if any signs of wear.

All blades must be sharpened in "sets" with equal amounts removed to maintain balance.

See section 6.22 for disc grinding details

Fig 6.8.1 Radiator Screen

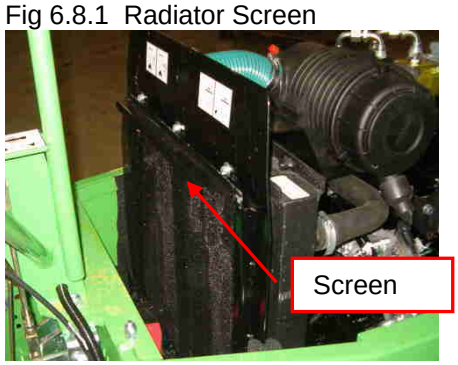


Fig 6.10 Air Cleaner

6.8 Radiator

Daily

6.8.1 Lift out radiator screen, clean and replace (fig 6.8).

50 hours

6.8.2 Blow radiator core from rear.

⚠ CAUTION! A build up of debris risks overheating of the engine and a risk of fire.

6.9 Steam Cleaning

50 hours

6.9.1 Check all covers are fitted and closed.

6.9.2 Steam clean machine surfaces.

6.9.3 Clean electrical components with a damp rag, spray with WD40 and then wipe with dry rag.

⚠ CAUTION! Do not steam clean directly on to electrical components, e.g. control boxes.

6.10 Air Cleaner

50 hours

6.10.1 Release clips and remove cover (fig 6.10).

6.10.2 Release wingnut, slide out element and either blow out with air-line or gently tap on smooth ground to release debris. If badly contaminated replace element.

6.10.3 Replace and tighten wingnut finger-tight.

6.10.4 Replace cover.

6.11 Electrical connections

50 Hours

6.11.1 Check all wiring loom connections are secure.

⚠ CAUTION! Poor connections will affect engine security cut-outs and may prevent starting.

Fig 6.12 Battery

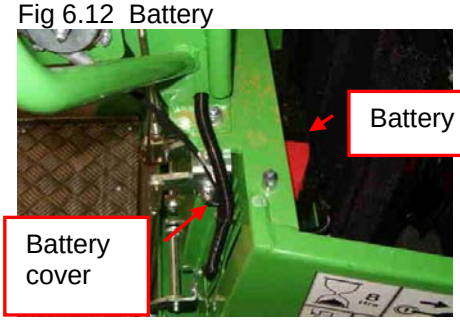
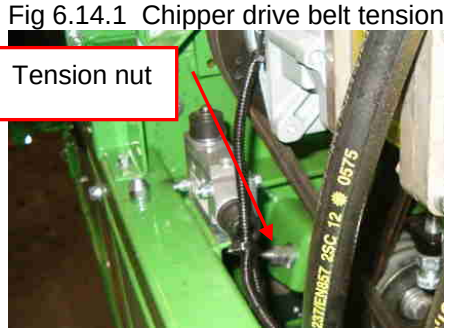


Fig 6.14.1 Chipper drive belt tension



6.12 Battery
50 hours
(fig 6.12)
6.12.1 Remove engine cover, check electrolyte level and top up if required

⚠ CAUTION! Gases are explosive. Electrolyte is corrosive. Avoid sparks and spillage.

6.12.2 To remove battery, remove metal cover (fig 6.12)
6.12.3 First disconnect negative (-) cable.
6.12.4 Disconnect positive (+) cable.
6.12.5 Remove clamp and carefully lift out battery.
6.12.6 Replace by connecting positive cable before negative.
6.12.7 Replace covers.

6.13 Bearings and Pivots
50 hours
See section 6.1 for routine lubrication.
250 hours
6.13.1 Check rotating components for excessive movement and noise in operation.
6.13.2 Replace as required.

6.14 Chipper Drive belt tension
After first 2-3 hours then 50 hours
6.14.1 Check tension. If belts are slack, adjust at tensioning nuts (fig 6.14.1).
6.14.2 To replace belts, slacken off tensioner pulley and remove belts.
6.14.3 Remove all belts and discard.
6.14.4 Fit new set of belts ensuring they lay snugly in grooves of all three pulleys.
6.14.5 Check alignment and retension before starting chipper.

Fig 6.15.1b Pump Drive Belts

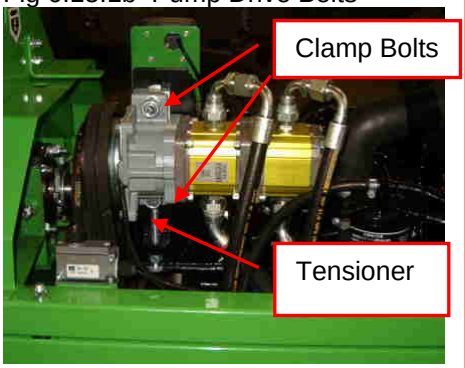
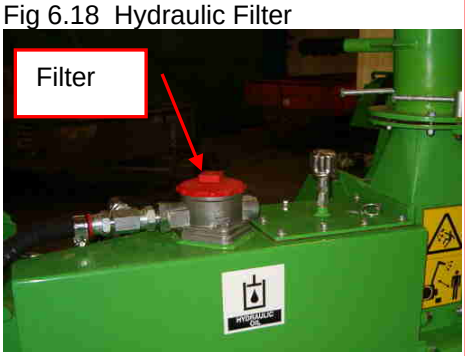


Fig 6.18 Hydraulic Filter



6.15 Pump drive belts
50 hours
6.15.1 Check tension. If belts are slack, tighten using adjuster bolt. (fig 6.15)
6.15.2 To replace, first remove chipper belts as 6.14.
6.15.3 Fit new set of belts ensuring they lay snugly in grooves of all three pulleys.
6.15.4 Check alignment and re-tension.
6.15.5 Replace chipper belts as 16.4.
Note: Spare belts may have been fitted over pump to reduce delay in emergency replacement.

6.16 Hydraulic connections
50 hours then 250 hours
6.16.1 With the aid of the circuit diagram to follow the hose routings, check all hoses and connections for leaks and damage.
6.16.2 Replace any worn or damaged hoses with the correct type and length.
6.16.3 Before removal, check routing and ensure replacement hose is fitted free of strains, twists or kinks.

⚠ CAUTION! Ensure any residual pressure is released before dismantling.

⚠ CAUTION! Ensure hoses are refitted free of twists and kinks.

6.17 Mountings
50 hours then 250 hours
6.17.1 Check that all mounting bolts are tight.

6.18 Hydraulic Return Filter (Fig 6.18)
250 hours
6.18a.1 Check oil is cool.
6.18a.2 Unscrew the filter cover (there is a spring under the cover) and carefully lift out the element, it may require gentle prising out, discard safely).
6.18a.3 Fit a new filter element to the correct specification and replace the cover and spring.

⚠ CAUTION! Do not overtighten.

6.19 Hydraulic Oil change
1000 hours

6.19.1 Remove hydraulic oil with suction pump at filler, or via drain plug on underside of tank and replace with new oil of correct specification.

6.19.2 Replace suction filter.

6.19.3 Dispose of waste oil according to local authority environmental procedures.

6.20 Fuses and No Stress system

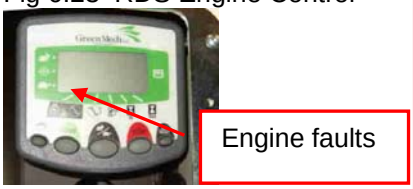
Starter	40 amp
No-Stress	20 amp
Fuel	30 amp

Note The engine operating speeds for the No Stress system are factory set for particular machine builds and must not be readjusted.

6.21 Fault finding

This machine is fitted with an RDS controller which can display various engine and machine faults:

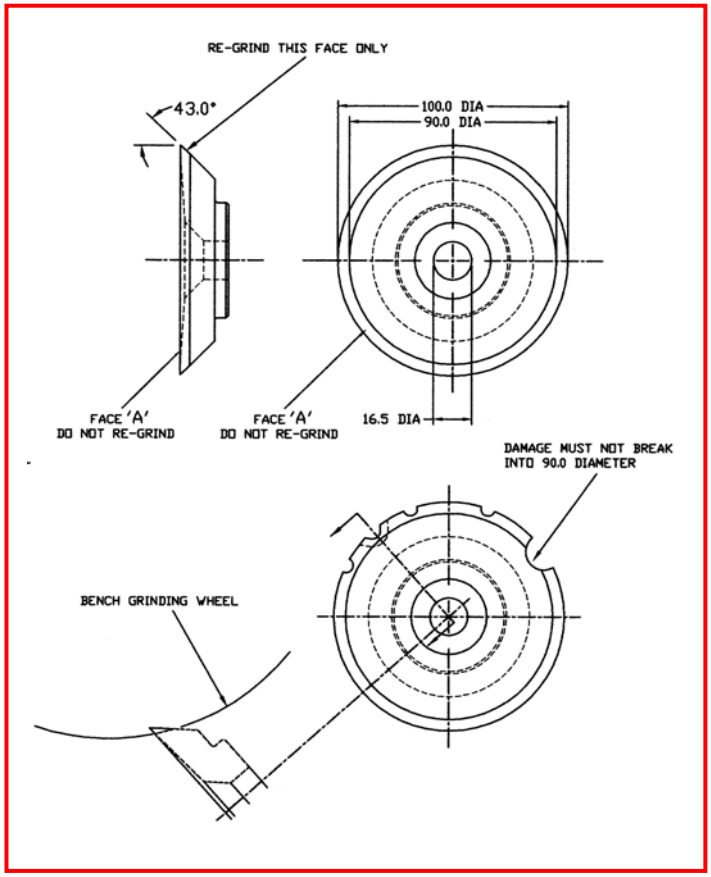
Fig 6.23 RDS Engine Control



6.21.1 Engine faults.
Black arrow at position 1: read-out COOL, OIL, or ALT
Check relevant problem (e.g. coolant) and rectify as below.
6.21.2 To reset read-out, press and hold SET/RESET for 2 seconds. Press STOP for 2 seconds. Restart engine.
6.21.3 If fault still present, consult dealer.

Fault	Check	Action	Page
Engine will not start	Battery	Recharge	6-7
	Fuel	Fill tank	6-4
	Oil pressure	Check Oil level	6-4
	Thermal cut-out	Check operation	3-2
	Fuses	Check	6-9
Engine not at correct speed	Hand throttle	Check operation	5-3
Engine stops. Control display 'COOL'	Radiator	Check level and clean core	6-4
Engine stops. Control display 'OIL'	Oil level	Check and top up oil	6-4
Engine stops. Control display 'ALT'	Alternator belt	Check and adjust tension. See engine manual	
No stress light not on	Fuses, cut-outs	Check operation	6-9
Blade disc will not start	Drive belts	Replace	6-7
Feed rollers do not turn	Chip/Track switch	Select 'Chip'	5-3
	Control bar	Reset and check	3-2
	Hydraulics	Check solenoid valve	
Feed will not reverse	Control bar	Reset and check	3-2
	Hydraulic valve	Check operation	
Discharge does not flow	Discharge chute	Check for blockage	5-1
	Flywheel	Check for blockage	5-1
Wood unevenly chipped	Blade condition	Replace with sharp blades	6-5
Machine unsteady	Track legs	Set to correct position	5-2
Unusual noise(s)	Flywheel and bearings	Check and replace	6-5
Track legs do not extend	Chip/Track switch	Select 'Track'	5-2
Tracks do not drive	Chip/Track switch	Select 'Track'	5-2
	Pump drive belts	Check and adjust	6-8
	Hydraulics	Check operation	

6.22 Chipper Disc Re-grinding



6.22.1 Examine set of chipper discs for damage. If front face 'A' is worn the disc must be scrapped. If chips have broken off the cutting edge they can be re-dressed provided that they do not go inside the 90mm diameter.

6.22.2 Always regrind the worst damaged disc first, as this will establish the target weight for the other discs.

6.22.3 If large chips exist over less than 30% of the circumference the disc may be re-ground provided the large damaged area is not used for chipping.

6.22.4 Chips may be repaired by grinding a cutting edge around the damaged area using a bench grinder.

6.22.5 With chipper disc mounted on a mandrel re-grind remainder of cutting edge at 43º as shown.

6.22.6 Re-grind in increments of approximately 0.01mm (0.004") until sharp edge is restored.

6.22.7 Re-grinding must not go below 90mm diameter or the disc must be scrapped.

6.22.8 After re-grinding the weight of discs within a set must not vary by more than +/- 1gm (0.03oz). The weight of each disc must not be less than 560gm (20oz).

7.1 Storage

7.1.1 Thoroughly clean machine and note any replacement parts required.
7.1.2 Carry out 250 hour service if not already done. Refer to Section 6
7.1.3 Fit replacement parts when available.
7.1.4 Remove battery Refer to 6.10
7.1.5 Drain fuel
7.1.6 Fold up infeed chute. Note: STC16-23 infeed chute can be removed and stowed on top of machine to reduce length.

7.2 Removal from Storage

7.2.1 Charge battery and refit Refer to 6.10
7.2.4 Carry out machine preparation as necessary Refer to Section 4

When the machine is finally scrapped, the following items should be disposed of only at authorised waste disposal facilities.

Engine oil. Hydraulic oil. Antifreeze. Battery. Tracks.

If in doubt, consult the Local Authority environmental department.

Major non-ferrous items such as engine cover and hydraulic hoses may also be disposed of separately.

Safety Guides and Checklist as Transcribed from and Advised by Arborculture & Forestry Advisory Group and Issued as Leaflet AFA604(rev1) by HSE, issued 04/14

INTRODUCTION

This leaflet covers the safe working practices to be followed when operating a wood chipper.

It does not cover a combination of machines working within each other's risk zones (see AFAG leaflet 605 ***Mechanical roadside processing*****)**

You can use this leaflet, along with the manufacturer's handbook, as part of the risk assessment process to help identify the controls to put in place when using a wood chipper.

You must also assess the effect of the site and the weather as well as following this guidance

All operators must have had appropriate training in how to operate the machine and how to carry out the tasks require (see AFAG leaflet 805 ***Training and certification)***

PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. Use the following PPE

- A Safety Helmet, complying with EN 397, if identified as required in the risk assessment.

- Eye Protection (a mesh visor complying with EN1731 or safety glasses to EN166)

- Hearing protection (complying with EN352) where noise level exceeds 85 dB(A) (see HSE pocket card INDG363 ***Protect your hearing or lose it!)***
- Gloves with long, close-fitting cuffs that can be tucked into sleeves
- Safety Boots with good grip and ankle support (complying with EN345-1)

- Non-Snag Outer Clothing appropriate to prevailing weather conditions. High-visibility clothing (complying with EN471) should be worn when the risk assessment identifies that it is needed.

2. Each person should carry a personal first-aid kit including a large wound dressing (see HSE leaflet INDG214 ***first aid at work; Your questions answered).***

3. Hand cleaning material such as waterless skin cleanser or soap, water and paper towel should be readily available.

THE MACHINE

4. Before working with a machine, check it has been properly converted from any transport mode.

5. Ensure guards for dangerous parts (e.g. belts, pulleys, shafts etc) are secure and undamaged.

6. Ensure protective devices, such as the infeed control bar (incorporating the stopping device), are working correctly (see HSE leaflet AI S 38 ***Power-fed mobile wood chippers: Operator protection at infeed chutes).***

7. Ensure any lock for the chipping components has been disengaged;

8. Ensure the infeed hopper is clear of any materials.

9. Ensure Noise warning signs are in place.

10. For machines driven by a power take-off (PTO) shaft, before starting ensure:

- The PTO shaft is fitted with a suitable guard complying with EN1152, that encloses the shaft along its full length from tractor to machine.

- The guard is correctly fitted and in effective working ordersee AIS40 ***Power take-offs and power take-off drive shafts;***

- The PTO speed is suitable for the machine.

SELECTING THE WORK AREA

11. Select as firm a surface as possible and stabilise the machine

12. Ensure ventilation is adequate and any exhaust fumes are vented into open air if working in an enclosed space.

13. Where appropriate, if the chipper is detached from the tow vehicle, apply the handbrake and, if necessary, chock the wheels.

14. On all reasonably foreseeable approaches to the worksite, erect warning and prohibition signs conforming to the Health and Safety (Safety Signs and Signals) Regulations 1996, indicating a hazardous worksite and that unauthorised access is prohibited. In areas of very high public access, a risk assessment may indicate that additional controls (e.g. barrier tape, barriers, extra manning) are required.

15. Ensure all operations near to highways are adequately signed with the appropriate notices as specified in the Department of Transport's ***Safety at street works and road works : A Code of Practice.***

16. Ensure that the discharge chute is positioned to prevent chips being blown onto the highway during roadside operations, or in any direction where they can affect colleagues or members of the public.

17. Position the chipper so that operators do not have to stand on embankments/slopes when feeding material into the machine

EMERGENCY PROCEDURES

18. Ensure a designated and responsible person knows the daily work programme and agree with them a suitable emergency contact procedure. Where reasonably practicable use a mobile phone or radio and pre-arrange call-in system.

19. Ensure the operators can provide the emergency services with enough detail for them to be found in the event of an accident, e.g. the grid reference, the distance from the main road, the type of access (suitable for car/four-wheel drive/emergency service vehicles). In urban areas street names are essential. Know the location details before they are needed in an emergency.

OPERATION

20. Make sure the cuffs of gloves are close fitting or tucked into you're sleeves to stop them being caught on material as it is fed into the chipper.

21. Set the engine speed (and set the stress control if fitted) to obtain optimum performance.

22. Check that material to be chipped is free from stones, metal and foreign objects.

23. Stand to one side of the infeed rollers to avoid being hit by ejected material.

24. Let material go as soon as it is engaged in the infeed rollers or chipping components.

25. Use a push stick at least 1.5 metre long, for both short produce and for the last piece of produce to be chipped.

26. Do not put any part of your body (including hands or feet), into the infeed hopper while the machine is running.

27. Always follow the manufactures' instructions for dealing with blockages on the machine.

28. Keep the area of ground in front of the infeed hopper free from debris to prevent any tripping hazard.

29. Remove the engine start key when the machine is left unattended or when undertaking any maintenance.

FUELLING

30. Stop engine and, if necessary allow the machine to cool before refuelling.

31. Petrol vapour is invisible and can flow considerable distances from spillage or fuelling sites. Maintain a safe distance from any source of ignition at all times.

32. Store fuel to avoid vapour ignition from any source such as fires, people smoking or the wood chipper. Select a site shaded from direct sunlight and away from watercourses and drains.

33. Containers must be clearly labelled and have securely fitting caps. Plastic containers must be designed and approved for use with petrol or diesel fuel.

34. Replace the fuel cap securely.

35. Keep fuel from contacting the skin. If fuel gets into the eyes wash out with sterile water immediately and seek medical advise

Maintenance

36. Ensure the machine is carried out in accordance with the manufacture's handbook.

37. Check chipping components and knives each day for damage and wear.

38. Wear gloves when handling knives.

39. Before working on knives, confirm that the engine is switched off, the start key removed, and the chipping component is stationary.

40. Before opening any guard/cover or reaching into the infeed hopper or discharge chutes make sure that the engine is switched off, start key removed and dangerous parts have come to a stand still.

41. Knives must be changed or reversed if damaged or blunt. Knives must be scrapped when worn to the minimum size specified by the manufacturer.

42. When new/sharpened knives are fitted, ensure that there is the recommended clearance between the knives and the anvil.

MOVING THE MACHINE

43. Stop the engine and remove the start/stop key.

44. Lock the chipping components.

45. Secure the infeed hopper and the chip discharge chute in the transport position.

46. Check the towing bracket, attach, then lift and secure the jockey wheel.

47. Connect the electrics and the safety chain/s to the towing vehicle.

48. Ensure that the load is secure and that people are in a safe position before moving off.

Further Reading

Noise: Don't lose your hearing!
INDG363(rev2)
HSE Books 2012
www.hse.gov.uk/pubns/indg363.htm

First aid at work: Your questions answered
Leaflet INDG2114(rev1)
HSE books 2009
www.hse.gov.uk/pubns/indg214.htm

Safety signs and signals. The Health and Safety (Safety Signs and Signals) Regulations 1996. Guidance on Regulations L64 (Second edition) HSE Books 2009 ISBN 978 0 7176 6359 0
www.hse.gov.uk/pubns/books/164.htm

Power-fed mobile wood chippers: Operator protection at infeed chutes AIS38 HSE 2013
www.hse.gov.uk/pubns/ais38.htm

Power take-offs and power take-off drive shafts AIS40 HSE Books2012
www.hse.gov.uk/pubns/ais40.htm

Treework webpages:
www.hse.gov.uk/treework

Risk Assessment

Assessment No: G001

GreenMech Ltd
A Turner Company

Company Name: **GreenMech Ltd**

Activity: ChipMaster SAFE-Trak

Hazard	**At Risk**	**Consequence (C)**		**Likelihood (L)**		**Risk Score**	**Controls**	**Revised**		**Final Risk Score**
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
ENTANGLEMENT With cutter in base of CHIPPER infeed chute	OPERATOR	FATALITY – LOSS OF LIMB	5	VERY LIKELY	5	25	Reach area safety distance to cutter complies to latest HSE guidelines. Fix safety stop rail to upper and side perimeter on infeed chute. Operation of this emergency stop system should operate as recommended by HSE. Only appointed operators to use machine (competent)	5	2	10
STABBING AND PUNCTURE by projectiles from cutter. Wood, stones, nails rebounding back out of infeed chute	OPERATOR	Injuries to face, eyes, head and hands	3	PROBABLE	4	12	Trained Operator. Check only green waste is fed into machine. Safety helmet to BSEN 397 Forestry visor Hard wearing gloves	3	2	6

Key:

Consequence	**Score**	**Likelihood**	**Score**	**To find risk Score multiply consequence rating by the likelihood rating**
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: G001-2

GreenMech Ltd
A Turner Company

Company Name: **GreenMech Ltd**

Activity: ChipMaster SAFE-Trak

Hazard	**At Risk**	**Consequence (C)**		**Likelihood (L)**		**Risk Score**	**Controls**	**Revised**		**Final Risk Score**
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
NOISE Guaranteed sound pressure level of Lwa 120dB	OPERATOR THIRD PARTY	NOISE INDUCED HEARING LOSS	4	PROBABLE	4	16	Wear hearing protection to BE EN 352-3. Display mandatory 'wear hearing protection' sign	4	2	8
VIBRATION – movement of machine	OPERATOR	BROKEN OR BRUISED LIMB	3	POSSIBLE	3	9	Trained Operator. Position machine on sound ground, if on slope must be across the slope and less than 35° and no possibility of land slip.	3	2	6
STABBING – PUNCTURE When operating handle to raise engine – residue from exhaust chute	OPERATOR THIRD PARTY	EYE INJURIES CUTS TO FACE	2	POSSIBLE	3	6	Cordon off collection point. Operator to wear head and face protection	2	1	2

Key:

Consequence	**Score**	**Likelihood**	**Score**	**To find risk Score multiply consequence rating by the likelihood rating**
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: G001-3

GreenMech Ltd
A Turner Company

Company Name: **GreenMech Ltd**

Activity: ChipMaster SAFE-Trak

Hazard	**At Risk**	**Consequence (C)**		**Likelihood (L)**		**Risk Score**	**Controls**	**Revised**		**Final Risk Score**
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
ENTANGLEMENT Branches with clothing	OPERATOR	Drawn into cutters – FATALITY – LOSS OF LIMBS	5	POSSIBLE	3	15	Wear snug fitting clothes. No ties, scarves etc. Same controls as for previous hazard of entanglement with cutters. Wear gloves with long cuffs which can be tucked into sleeves	5	2	10
STABBING AND PUNCTURE – Processed green waste	OPERATOR THIRD PARTY	EYE INJURIES, CUTS TO FACE	1	POSSIBLE	3	3	Trained operator Lock off exhaust chute Cordon off collection point	1	1	1
STABBING AND PUNCTURE – Handling branches	OPERATOR	CUTS TO HANDS	2	QUITE POSSIBLE	4	8	Wear hardwearing gloves with long cuffs that can be tucked into sleeves.	2	2	4

Key:

Consequence	**Score**	**Likelihood**	**Score**	**To find risk Score multiply consequence rating by the likelihood rating**
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: G001-4

GreenMech Ltd
A Turner Company

Company Name: **GreenMech Ltd**

Activity: ChipMaster SAFE-Trak

Hazard	**At Risk**	**Consequence (C)**		**Likelihood (L)**		**Risk Score**	**Controls**	**Revised**		**Final Risk Score**
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
IMPACT Being struck by branch when feeding green waste into cutters	OPERATOR	BROKEN LIMB BRUISES	3	POSSIBLE	3	9	Stand at side of machine. Trained operator	3	2	6
CRUSH, IMPACT Being caught between tracks when opening or closing	OPERATOR	BROKEN LIMB, BRUISES	3	POSSIBLE	3	9	Trained operator. Keep other persons away from machine. Out feed chute must be pointed to rear of machine	3	2	6
MANUAL HANDLING Lowering outfeed chute	THIRD PARTY	Back problems. Damaged tendons, muscles etc	3	POSSIBLE	3	9	Trained operator. Keep other persons away from machine. Out feed chute must be pointed to rear of machine.	3	1	3

Key:

Consequence	**Score**	**Likelihood**	**Score**	**To find risk Score multiply consequence rating by the likelihood rating**
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

Risk Assessment

Assessment No: G001-5

GreenMech Ltd
A Turner Company

Company Name: **GreenMech Ltd**

Activity: ChipMaster SAFE-Trak

Hazard	**At Risk**	**Consequence (C)**		**Likelihood (L)**		**Risk Score**	**Controls**	**Revised**		**Final Risk Score**
	Those likely to be affected	Likely injury from hazard	Rating	Of incident	Rating			C Rating	L Rating	
EJECTION, PENETRATION Failure of hydraulic system	OPERATOR THIRD PARTY	Penetration of skin. Bruising. Face injuries.	3	POSSIBLE	3	9	Trained operator. Cutters isolated from power source whilst machine in motion. Very slow speed. Plan and inspect safety of route to work place.	3	1	3
FALLING FROM STAND-ON PLATFORM WHEN IN MOTION	OPERATOR	Spinal or broken limb	3	POSSIBLE	3	9	Trained operator. Very slow speed. Plan and inspect Safety of route to work place.			

Key:

Consequence	**Score**	**Likelihood**	**Score**	**To find risk Score multiply consequence rating by the likelihood rating**
Fatality	5	Very likely	5	Final revised risk score acceptable to the company is 10 or less. If higher, further controls are required. Final revised likelihood score must be 2 or less
Disability	4	Probable	4	
Very serious (broken limbs)	3	Possible	3	
Important (3 day accident)	2	Remotely possible	2	
Noticeable (first aid)	1	Improbable	1	

Signed: ……

Date: ……

Review Date: ……

WARRANTY POLICY

PERIOD OF WARRANTY

All new machinery is supplied with a 2 year warranty from original date of purchase, excluding CS100 which has a 1 year warranty from original date of purchase.

LIMITATIONS

This warranty applies only to manufacturing defect and **does not** cover repairs or costs due to:

1. Normal wear and tear.
2. Routine maintenance or adjustment.
3. Damage caused by improper handling/abuse/misuse or neglect.
4. Lack of lubrication.
5. Overheating due to lack of maintenance.
6. Damage due to fittings/fasteners becoming loose/detached through lack of maintenance.
7. Damage caused by cleaning with water.
8. Machines serviced or repaired by non-authorised GreenMech dealers.
9. Machines incorrectly assembled or adjusted.
10. Damage caused by improper use of the machine.
11. Items considered as consumable parts are not normally covered by the warranty, including but not limited to: Blade and Blade Assemblies - Belts - Filters - Clutch Assemblies - Lubricants - Wheels & Tyres - Batteries
12. Consequential loss, damages or costs.

MAINTENANCE

Maintenance carried out during the warranty period should be carried out as per section 6 of the machine owner's manual and by an authorised GreenMech dealer.

ENGINES

This is covered by the manufacturer of the engine. Please refer to the separate warranty conditions as supplied with the owner's manual.

All warranty repairs must be carried out by an authorised GreenMech dealer, except for engines, please refer to separate warranty terms supplied with the engine owner's manual.